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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,648	06/02/2003	Jean-Marc Frances	RN98132	3040

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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,648

Applicant(s)

FRANCES, JEAN-MARC

Examiner

Susan W. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-18 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Terminal Disclaimer

The terminal disclaimer filed on 04/11/2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Application Number 10/781,064 has been reviewed and is accepted. The terminal disclaimer has been recorded.

The rejection of claims under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/781,064 is hereby withdrawn.

Applicant states an intent to submit a terminal disclaimer to obviate the obviousness-type double patenting rejections of record over U.S. Patent No. 6,747,071; however, no terminal disclaimer has been received. The obviousness-type double patenting rejections are maintained.

Response to Arguments

Applicant argues that CA '960 discloses compositions comprising silanes rather than silicone oligomers or polymers. This argument is not persuasive because CA '960 clearly discloses silicone oligomers or polymers obtained from polymerizable and hydrolyzable silanes that are useful in dental materials. See page 17 to page 25 and claims 11-20. Furthermore, formula (I) disclosed by CA '960 includes silicones or siloxanes comprising at least two silicon atoms when "b" is 2 or 3 (see pages 4-5 and compounds on pages 10-11).

Applicant further argues that one skilled in the art would not have been motivated to employ the borate salts taught by Priou et al in the compositions disclosed by CA '960. This argument is not persuasive because both CA '960 and Priou et al disclose cationically polymerizable compositions comprising siloxanes having oxetane, epoxy or vinyl ether functional groups and onium salts as initiators. Applicant argues that compositions, as instantly claimed, comprising at least 10% by weight of a dental filler is not suitable for high speed coating applications. This argument is not persuasive because CA '960 teaches compositions comprising 0 to 90 wt. % fillers preferably used for dental materials and that

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onium salts are useful initiators (see page 25). The disclosure of Priou et al is relied upon for teaching onium borates salts useful for initiating cationic polymerization of functional polyorganosiloxanes, not for teaching dental compositions comprising fillers.

Schmidt discloses compositions for coating teeth and for dental prostheses comprising organofunctional silanes or siloxanes and a compound "MR_x". See the definitions of silane formula (II) and silane formula (III), wherein X can be a hydroxyl, alkoxy, or acyloxy group. Reaction products of formula II or of formula II with formula III would each be expected to provide a unit of formula (1) as shown in instant claim 1, including a "Z" moiety, at least two silicon atoms and an -Si-O- bond. Furthermore, Schmidt specifically teaches that pre-condensed oligomers of disclosed silanes can be used (column 3, lines 49-54). Schmidt clearly teaches metallocene-like complex salts, such as a ferrocene, iodonium salts, such as iodonium tetrafluoroborate, are suitable cationic initiators, providing motivation to use an organometallic borate, as taught by Priou, as the cationic initiator. Priou does not mention dental application for the disclosed compositions, however, Priou is considered to be art within the field of endeavor since Priou teaches initiators for cationic crosslinking of organosiloxanes containing functional groups, such as epoxy or alkenyl ether corresponding to the functional groups taught by Schmidt.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is noted that claim 16 has been amended to depend from claim 14 which provides antecedent basis for the recitation of "Z1". However, claim 14 limits Z1 to an epoxy or a dioxolane group while claim 16 includes two alkenyl ether groups for "Z1". Claim 12, from which claim 16 originally depended, recites

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"Z" and includes epoxy, dioxolane and alkyenyl ether groups. It is suggested that either the alkyenyl ether groups be deleted or the claim be rewritten to depend from claim 12 and change "Z1" to "Z".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ivoclar AG, Li (CA 2 232 960) in view of Priou (5,693,688). CA '960 discloses dental materials obtained from polymerizable and hydrolyzable oxetane silanes. Sensitizers and fillers are taught on pages 23-25. CA '960 teaches using a cationic initiator, such as BF₃, or a photoinitiator such as onium salts or cyclopentadienyl iron (I) salts. CA '960 does not mention borate salts of cyclopentadienyl iron or other organometallic cations. Priou discloses initiators for cationic polymerization or crosslinking of functional polyorganosiloxanes crosslinkable cationically and under UV. The same organometallic salts having a borate anion as are instantly claimed are disclosed in column 4. organometallic salts of iron are especially preferred (column 4, lines 12-13). Compositions comprising the organometallic salts and epoxy functional or vinyloxy functional polyorganosiloxanes are taught. Photosensitizers and fillers can be added (column 7, lines 23-36). Priou does not teach use in dental materials.

It would have been obvious to one skilled in the art at the time of the invention to substitute a cyclopentadienyl iron salt of a borate anion photoinitiators taught by Priou for the cyclopentadienyl iron salts as photoinitiator in the analogous organosiloxane compositions disclosed by CA '960. CA '960 provides motivation by teaching that cyclopentadienyl iron salts are suitable photoinitiators in the disclosed compositions. Priou provides motivation by teaching that cyclopentadienyl iron salts of a borate

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anion are useful for photopolymerization or photocrosslinking of polyorganosiloxane having epoxy or vinyloxy functional groups. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of successfully providing a photocurable organosiloxane composition for dental materials, as taught by CA '960.

Claims 12-14, 16, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (5,401,528 or WO 92/16183) in view of Priou (5,693,688). Schmidt discloses compositions for coating teeth and for dental prostheses comprising organofunctional silanes or siloxanes and a compound "MR_x". See the definitions of silane formula (II) and silane formula (III), wherein X can be an hydroxyl, alkoxy, or acyloxy group. Reaction products of formula II or of formula II with formula III would each be expected to provide a unit of formula (1) as shown in instant claim 1, including a "Z" moiety, at least two silicon atoms and an -Si-O- bond. Furthermore, Schmidt specifically teaches that pre-condensed oligomers of disclosed silanes can be used (column 3, lines 49-54). Among the specific photoinitiators taught is a cyclopentadienyl iron PF₆⁻ salt (column 5, line 60, to column 6, line 11).

Priou discloses initiators for cationic polymerization or crosslinking of functional polyorganosiloxanes crosslinkable cationically and under UV. The same organometallic salts having a borate anion as are instantly claimed are disclosed in column 4. organometallic salts of iron are especially preferred (column 4, lines 12-13). Compositions comprising the organometallic salts and epoxy functional or vinyloxy functional polyorganosiloxanes are taught. Photosensitizers and fillers can be added (column 7, lines 23-36). Priou does not teach use in dental materials.

It would have been obvious to one skilled in the art at the time of the invention to substitute a cyclopentadienyl iron salt of a borate anion photoinitiators taught by Priou for the cyclopentadienyl iron salts as photoinitiator in the analogous organosiloxane compositions disclosed by Schmidt. Schmidt provides motivation by teaching that cyclopentadienyl iron salts are suitable photoinitiators in the

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disclosed compositions. Priou provides motivation by teaching that cyclopentadienyl iron salts of a borate anion are useful for photopolymerization or photocrosslinking of polyorganosiloxane having epoxy or vinyl oxy functional groups. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of successfully providing a photocurable organosiloxane composition for dental materials, as taught by Schmidt.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 12-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,747,071. Although the conflicting claims are not identical, they are not patentably distinct from each other because the compositions set forth in the claim 4 of US '071 are encompassed by the compositions set forth in the claims of the instant application. It would have been obvious to one skilled in the art at the time of the invention to employ compositions comprising an organometallic salt of a borate anion of the generic formula set forth in the instant claims in view of the cyclopentadienyl iron organometallic borate salts set forth in claim 4 of US '071. Organometallic borate salts of the instantly claimed formula would have been immediately envisioned from the species of organometallic iron salts set forth in claim 4 of US '071. One of ordinary

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skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful dental composition.

Claims 12-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,747,071 in view of Priou '688. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. The compositions set forth in the claims of US '071 encompass compositions comprising a photoinitiator containing a borate anion and an onium cation (claim 1) or a cyclopentadienyl iron cation (claim 4). Priou teaches analogous compositions wherein the photoinitiator can be an onium borate or an organometallic salt of formula (II) set forth in column 4 of US '688. It would have been obvious to one skilled in the art at the time of the invention to employ an organometallic salt of a borate anion instead of an onium borate salt in the compositions set forth in the claims of US '071. US '071 provides motivation by teaching organometallic borate salts in claim 4. Priou provides additional motivation by teaching that onium borate salts or organometallic borate salts are suitable photoinitiators in analogous silicone compositions. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful dental composition, as claimed in US '071.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman
Primary Examiner
Art Unit 1711

SB
7/7/2005